# REMARKS

The Office Action mailed July 28, 2009 has been reviewed and carefully considered. No new matter has been added.

Claims 5 and 15 have been amended. Claim 8 has been cancelled without prejudice. New Claims 16-24 have been added. Claims 1-7 and 9-24 are pending. Claims 1-4 have been withdrawn.

Claims 5-15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Krunz et al., Impact of video scheduling on bandwidth allocation for multiplexed MPEG streams" (hereinafter "Krunz").

The independent claims in the instant case are Claims 5 and 15. As noted above, Claim 8 has been cancelled. Moreover, Claims 5 and 15 have been amended to now essentially incorporate the limitations of Claim 8.

It is respectfully asserted that none of the cited references teach or suggest the following steps of/means for recited in Claims 5 and 15: "wherein said video segments include a fixed number of frame positions and said fixed number of frame positions is an integer multiple of a number of said plurality of channels". Against the preceding limitation, the Examiner cited page 350, left. col., section 4.1, lines 3-5' pg. 348, right col., section 2, lines 41-43 of Krunz as disclosing the same. The Applicants respectfully disagree.

Page 350, left column, section 4.1, lines 3-5 of Krunz disclose the following: "Alignment of frame boundaries can be enforced by introducing a fixed amount of delay (less than one frame period) in the path of a video connection before entering the multiplexer."

Page 348, right column, section 2, lines 33-48 (counting only lines having text thereon, hence the broader range to ensure that the cited portion is included in the following reproduction):

Regular GOP patterns can be specified by two parameters:

$L$: number of frames between two consecutive I-frames in an MPEG stream;
$Q$: number of frames between an I-frame and the subsequent $I/P$-frame (whichever comes first) in an MPEG stream.

The regularity of the GOP pattern implies that $L$ is a multiple of $Q$. Notice that it is possible to have $L = Q = 1$, in which case only $I$-frames are generated (i.e., JPEG-like stream).

            To provide deterministic guarantees for video traffic, we characterize a
    video stream by a traffic envelope that is similar, to some extent, to the D-BIND
    model introduced in [7]. In our model, a stream consists of a sequence of
    compressed frames generated at a constant frame rate according to a *regular* GOP
    pattern.

        With respect to the first cited section of Krunz, it is clear that such section does not teach or

suggest or even remotely relate to the number of channels, let alone "wherein said video segments

include a fixed number of frame positions and said fixed number of frame positions is an integer

multiple of a number of said plurality of channels" as recited in Claims 5 and 15. For example, the

word or concept of "channel" does not occur even once. Moreover, the mere fact that frame

boundary alignment can be enforced in the path of a video connection before entering the

multiplexer using a fixed amount of delay has no bearing nor suggests any limitation on the number

of fixed positions and/or channels, unlike the explicit limitations of Claims 5 and 15 which relate

and explicitly constrain the two items (fixed number of frame positions in the video segments

WITH the number of channels).

        With respect to the second cited section of Krunz, the fact that streams as modeled by Krunz

consist of a sequence of compressed frames generated at a constant frame rate according to a regular

GOP pattern, even in the case where $L=Q=1$ (i.e., only I frames are generated), does not relate and

explicitly constrain fixed number of frame positions in the video segments WITH the number of

channels, as essentially done by the above reproduced limitations of Claims 5 and 15. Moreover,

the case of $L=Q=1$ (i.e., only I frames are generated) is contrary to the explicit recitations of Claims

5 and 15 which call for the video segments to be encoded into a plurality of frame types and not just

one.

        Hence, Krunz does not teach or even remotely suggest the preceding limitations of

independent Claims 5 and 15.

        Claims 6-7, 9-14, 16, and 18 directly or indirectly depend from Claim 5 and thus include

all the limitations of Claim 5. Accordingly, Claims 6-7, 9-14, 16, and 18 are patentably distinct

and non-obvious over the cited reference for at least the reasons set forth above with respect to

Claim 5.

        Similarly, Claims 17, and 19-24 directly or indirectly depend from Claim 15 and thus

include all the limitations of Claim 15. Accordingly, Claims 17, and 19-24 are patentably

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distinct and non-obvious over the cited reference for at least the reasons set forth above with respect to Claim 15.

Moreover, said dependent claims include patentable subject matter in and of themselves and are, thus, patentable distinct and non-obvious over the cited references in their own right. For example, it is respectfully asserted that Krunz does not teach or suggest "wherein said fixed number of frame positions is equal to the number of said plurality of channels, such that the integer multiple is equal to one" as recited in Claims 16 and 17. For example, given that Krunz does not disclose any limitation between the fixed number of frame positions in the video segments and the number of channels, let alone that the former is an integer multiple of the latter as essentially recited in Claims 5 and 15, Krunz does not disclose the further limitations that the fixed number of frame positions in the video segments is equal to the number of channels where the integer multiple is equal to one as essentially recited in Claims 16 and 17.

Moreover, it is respectfully asserted that Krunz does not teach or suggest "wherein an optimum staggering order of said specified frame type is obtained by maintaining a distance between frames of said specified frame type at a maximum on average, in consideration of the number of said plurality of channels" as recited in Claims 18 and 19.

Further, it is respectfully asserted that Krunz does not teach or suggest "wherein said causing means comprises a frame rate counter, a set of phase registers, and a set of comparators, wherein the frame rate counter has an output connected in signal communication with a first input of each of the comparators in the set of comparators, and each phrase register in the set of phase registers has a respective output connected in signal communication with a second input of a respective comparator in the set of comparators" as recited in Claim 20.

Also, it is respectfully asserted that Krunz does not teach or suggest "wherein the video segments are operated on by corresponding ones of channel video encoders, and the frame rate counter synchronizes reset signals associated with the channel video encoders" as recited in Claim 21.

Additionally, it is respectfully asserted that Krunz does not teach or suggest "wherein ones of the plurality of registers are loaded with frame offset values corresponding to a selected frame stagger for an associated one of the plurality of channels" as recited in Claim 22.

Moreover, it is respectfully asserted that Krunz does not teach or suggest "wherein ones of the plurality of comparators are functionally associated with ones of the channel video encoders, the plurality of comparators being operative to provide a timing signal as an output corresponding to the selected frame stagger for the associated one of the plurality of channels" as recited in Claim 23.

Further, it is respectfully asserted that Krunz does not teach or suggest "wherein said causing means further comprises: a plurality of gates adapted to receive as inputs an encoder reset signal level and an output of ones of the plurality of comparators and to provide as an output a reset signal for an associated one of the channel video encoders, wherein respective ones of the channel video encoders are reset at respective timing points corresponding to the selected frame stagger for a respective one of the plurality of channels" as recited in Claim 24.

Rather, Krunz is completely silent with respect to the preceding limitations of Claims 19-24. For example, Krunz does not include any hardware figures, let alone showing the explicit elements, e.g., frame rate counter, phase registers, comparators, and/or gates as recited in Claim 20-24.

Accordingly, reconsideration of the rejection is respectfully requested.

In view of the foregoing, Applicants respectfully request that the rejection of the claims set forth in the Office Action of July 28, 2009 be withdrawn, that pending claims 1-7 and 9-24 be allowed, and that the case proceed to early issuance of Letters Patent in due course.

With the addition of new claims, there are now a total of 23 claims pending in this application, three being independent claims. Therefore, it is believed that a fee for three additional claims (over twenty) is due, and that a total fee due corresponding to the submission of this amendment/response is $156. You are hereby authorized to charge the amount of $156 to Deposit Account No. 07-0832. If others fees or charges are determined to be due, please charge Deposit Account No. 07-0832 for these fees or charges. Furthermore, if any credits appear due, they may be awarded to Deposit Account No. 07-0832 as well.

Respectfully submitted,

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